

Claims

1. A susceptor system for an apparatus for the treatment of substrates and/or wafers, provided with a treatment chamber (1) delimited by at least two walls and with at least one heating solenoid (9), comprising at least one susceptor element (2, 3) delimited by an outer surface and made of electrically conducting material suitable for being heated by electromagnetic induction, characterized in that the at least one susceptor element (2, 3) is hollow, in that a first portion of the outer surface of the at least one susceptor element (2, 3) is suitable for acting as a wall of the treatment chamber (1), and in that a second portion of the outer surface of the at least one susceptor element (2, 3) is suitable for being disposed close to the heating solenoid (9).
2. A susceptor system according to Claim 1, in which the at least one susceptor element (2, 3) is provided with thermal and chemical protection at least on the first portion of the outer surface.
3. A susceptor system according to Claim 2 in which the protection is constituted by at least a surface layer of inert and refractory material internal to the at least one susceptor element (2, 3).
4. A susceptor system according to Claim 2 in which the protection is constituted by at least one plate of inert and refractory material adjacent the outer surface of the at least one susceptor element (2, 3).
5. A susceptor system according to Claim 2 in which the protection is constituted by a combination of at least one surface layer of inert and refractory material internal to the at least one susceptor element (2, 3) and at least one plate of inert and refractory material adjacent the outer surface of the at least one susceptor element (2, 3).
6. A susceptor system according to any one of Claims 3 to 5, in which the inert and refractory material is also electrically insulating.
7. A susceptor system according to any one of the preceding claims in which the at least one susceptor element (2, 3) is hollow so as to have at least one hole (21, 31), preferably a through-hole, which extends in a longitudinal direction.

8. A susceptor system according to any one of the preceding claims, comprising two hollow susceptor elements (2, 3) in which a first portion of the outer surface of one (2) of the two susceptor elements and a first portion of the outer surface of the other (3) of the two susceptor elements are suitable for acting as an upper wall and as a lower wall of the treatment chamber (1), respectively, and in which a second portion of the outer surface of one (2) of the two susceptor elements and a second portion of the outer surface of the other (3) of the two susceptor elements are suitable for being disposed close to the heating solenoid (9).
9. A susceptor system according to Claim 8, further comprising two susceptor elements (4, 5) made of electrically insulating and also inert and refractory material and suitable for acting as a right-hand side wall and as a left-hand side wall of the treatment chamber (1), respectively.
10. A susceptor system according to Claim 8, further comprising two susceptor elements (4, 5) made of electrically conducting material and suitable for acting as a right-hand side wall and as a left-hand side wall of the treatment chamber (1), respectively.
11. A susceptor system according to Claim 10 in which the side susceptor elements (4, 5) are provided with thermal and chemical protection at least on the portion of their surface that is adjacent the treatment chamber (1).
12. A susceptor system according to any one of Claims 9, 10 and 11 in which the side susceptor elements (4, 5) are not hollow.
13. A susceptor system according to any one of the preceding claims in which at least one of the hollow susceptor elements (2, 3) extends substantially uniformly in a longitudinal direction and has a cross-section having the external shape substantially of a segment of a circle or ellipse.
14. A susceptor system according to any one of the preceding claims in which at least one of the non-hollow susceptor elements (4, 5) extends substantially uniformly in a longitudinal direction and has a cross-section having a substantially rectangular or trapezoidal external shape.
15. Apparatus of the type suitable for treating substrates and/or wafers, provided with a treatment chamber (1) delimited by at least two walls, characterized in that

it comprises a susceptor system (2, 3, 4, 5) according to any one of Claims 1 to 14 adjacent the treatment chamber (1) and at least one solenoid (9) which is wound around the susceptor system (2, 3, 4, 5) and the treatment chamber (1) and is suitable for heating the susceptor system by electromagnetic induction.

16. Apparatus according to Claim 15 in which the susceptor system (2, 3, 4, 5) extends in a longitudinal direction, and in which the external shape of the cross-section of the susceptor system (2, 3, 4, 5) is substantially uniform in the longitudinal direction and is substantially circular or elliptical.

17. Apparatus according to Claim 15 or Claim 16 in which the treatment chamber (1) extends in a longitudinal direction and in which the shape of the cross-section of the treatment chamber (1) is substantially uniform in the longitudinal direction.

18. Apparatus according to Claim 17 in which the average width of the treatment chamber (1) is at least three times, preferably at least five times the average height of the treatment chamber (1).

19. Apparatus according to any one of Claims 15 to 18, comprising a first structure (7) which surrounds the treatment chamber (1) and the susceptor system (2, 3, 4, 5) and which is constituted substantially by a tube of refractory and thermally insulating material which extends in a longitudinal direction, and in which the solenoid (9) is wound around the first structure (7).

20. Apparatus according to Claim 19, comprising a second, hermetic structure (8) suitable for surrounding the first structure (7), and in which the solenoid (9) is also wound around the second structure (8).

21. Apparatus according to any one of Claims 15 to 20, comprising means for causing at least one gas-flow to flow in at least one through-hole (21, 31) of the susceptor system (2, 3, 4, 5).

22. Apparatus according to any one of Claims 15 to 21, comprising a slide (6) mounted inside the treatment chamber (1) and suitable for supporting at least one substrate or at least one wafer, the slide (6) being slidable in guided manner in the longitudinal direction.

23. Apparatus according to Claim 22 in which the susceptor system (2, 3, 4,5) has a guide (32) which is suitable for receiving the slide (6) and which extends in the longitudinal direction so that the slide (6) can slide along the guide (32).
24. Apparatus according to Claim 22 or Claim 23 in which the slide (6) comprises at least one disc (61) suitable for supporting at least one substrate or at least one wafer, and is provided with a recess (62) suitable for housing the disc (61) rotatably.
25. Apparatus according to any one of Claims 15 to 24, characterized in that it is a reactor for the epitaxial growth of silicon carbide or similar material on substrates.
26. Apparatus according to any one of Claims 15 to 24, characterized in that it is an apparatus for the high-temperature thermal treatment of wafers.